beautiful phenomena described. The arrangement employed to obtain photographs of drop-splashes, and some of the results, were shown in NATURE of July 5, 1894.

DR. E. RUDOLPH, who has given much attention to submarine earthquakes and eruptions, has recently contributed a second valuable memoir on "Seebeben" to the *Beiträge zur Geophysik.* It contains accounts of more than two hundred additional shocks, and also a small map of the seismic zone of the Equatorial Atlantic. The memoir concludes with a useful list of questions for the observation of submarine earthquakes.

M. DE FONVIELLE has translated into French Lord Salisbury's Oxford Address to the British Association, and MM. Gauthier-Villars et Fils have just published the translation in their series of Actualités Scientifiques, under the title "Les Limites Actuelles de notre Science." The address is prefaced by a long introduction, in which the translator describes the circumstances under which it was given; and throughout the pages there are numerous notes explanatory of points, the importance of which might be overlooked by French readers.

A NEW volume in the Aide mémoire Series, published jointly by Gauthier-Villars and Masson, is "Polarisation et Saccharimétrie," by D. Sidersky. The volume is a handy aid to the study of polarisation and its numerous applications in analytical chemistry. The first part contains a description of the properties of polarised light, a table of the specific rotatory powers of various optically active substances, and explanations of polarising apparatus. The second part of the book is devoted to the applications of the constant of rotation to the quantitative analysis of sugars, alkaloids, &c., together with a number of tables which will facilitate the practical application of the processes described.

BY the recent publication of two numbers of the *Essex Naturalist*, the Essex Field Club has brought their journal up to date. The first number (November–December 1894) includes papers on "Izaak Walton's Association with the Lea," by J. E. Harting, the "Geology of the Lea Valley," by T. V. Holmes, and on "Navestock in Olden Days," by Rev. S. Coode Hore. The second number (January–June 1895), contains a paper, by Prof. Meldola, on the "Eastern Boundary Stones of Waltham Forest," the Presidential address (in which the part played by the Club in the development of technical education in the county is explained), and a series of three papers, by Messrs. T. V. Holmes, E. T. Newton, and W. M. Webb, on the section in brick-earth at Chelmsford in which mammoth remains were recently found.

SEVERAL interesting papers are contained in the part of the *Proceedings* of the Royal Society of Edinburgh, just published (vol. xx. pp. 385–480). In "A Sketch of Lake-Dwelling Research," Dr. Robert Munro shows that over a wide geographical area, extending from Ireland to Bosnia, and from North Germany to Italy, the habit of constructing lake- and marsh-dwellings was prevalent in former times. Prof. Sir William Turner, F.R.S., has a paper "On M. Dubois' description of remains found in Java, named by him *Pithecanthropus erectus;* with remarks on so-called transitional forms between Apes and Man." A paper on drops, by Mr. J. B. Hannay, summarises the work of various observers on the formation of drops, and the variation with density and chemical composition of the liquid forming them, and gives the author's own investigations upon the subject. There are also in the *Proceedings* Prof. T. R. Fraser's two papers on "Antivenine," and a paper by Prof. J. C. Ewart "On the Dorsal Branches of the Cranial and Spinal Nerves of Elasmobranchs."

THE fourth edition, revised and enlarged, of Dr. Carl Günther's "Bakteriologie" has been published by Georg Thieme, Leipzig. We noticed the third edition in March of last year (vol. xlix. p. 455), and the present issue sustains the commendation then given, viz. that "the volume is undoubtedly one of the best introductions to the study of bacteriology which has yet been produced." Another new edition which we welcome is the "Cours Elementaire de Manipulations de Physique," by Prof. A. Witz, published by Gauthier-Villars. The book contains a descriptive course of work covering the fundamental principles and laws of physical science. Each experiment is divided up into four sections, as follows: first, the theory of the experiment is stated; then the apparatus is described; the experimental operations form the subject of another section, and the results of observations are given in the fourth. Though the book is here and there deficient in the details required by students of practical physics, it is altogether a useful companion to the physical laboratory.

THE Catalogue of the Library of the Royal Geographical Society, compiled by Dr. H. R. Mill, and lately published, is a very full and valuable index to the literature of geography. The Catalogue contains the titles of all works in the possession of the Royal Geographical Society published up to the close of 1893. The entries (amounting to as many as 18,000) are arranged in four divisions. The first division, which runs into 521 of the 833 pages, is a general alphabetical author's catalogue; the second comprises collections of voyages and travels, arranged in alphabetical order under authors' names, and containing a brief analysis of the contents of each volume; in the third division, Government, anonymous, and other miscellaneous publications are arranged geographically; while the fourth consists of a list of transactions and periodical publications, arranged in a similar manner according to the place of publication. With such a comprehensive classification, it is easy to find the works of each author, and to refer to the literature concerning different divisions of the earth. A valuable supplement to the Catalogue will be the subject index now being prepared, and in which the principal contents of all the geographical books and periodicals belonging to the Society will be classified.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*, ♀) from India, presented by the Rev. Sidney Vatcher; a Crested Porcupine (*Hystrix cristata*) from East Africa, presented by Captain B. L. Sclater; three Common Rheas (*Rhea americana*) from South America, presented by Mr. Robert Günther; four Rhomb-marked Snakes (*Psammophylax rhombeatus*), three Crossed Snakes (*Psammophis crucifer*), two Rough-keeled Snakes (*Dasypeltis scabra*), a Smooth-bellied Snake (*Homalosoma lutrix*), a Robben Island Snake (*Coronella phocarum*) from South Africa, presented by Mr. J. E. Matcham; a Bonnet Monkey (*Macacus sinicus*) from India, a Yellow Baboon (*Cynocephalus babouin*) from West Africa, a Rose Hill Parrakeet, (*Platycercus eximius*) from Australia, deposited; three Prevost's Squirrels (*Sciurus prevosti*) from Malacca, purchased.

OUR ASTRONOMICAL COLUMN.

THE OBSERVATORY ON MONT BLANC.—Two causes combined to induce Dr. Janssen to undertake his recent ascent of Mont Blanc. First, he was anxious to be convinced of the perfect safety of the new telescope which has been conveyed to the observatory; and second, the meteorograph had ceased to perform its various important duties (*Comptes rendus*, October 7). It is intended to mount the telescope, which has an aperture of thirteen inches, with its axis parallel to that of the earth, and a mirror nearly twenty-four inches in diameter will be employed to reflect the light of the heavenly bodies into the telescope; the mirror and telescope will have a common movement, so that the relative positions of the stars will not change on account of the diurnal motion. The meteorograph was found to be some-

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what unstable, but arrangements have been made by which it is hoped that the records may be continued. A slight movement of the observatory towards Chamounix was noted, but it is expected that future displacements will be insignificant; and, in any case, the means are at hand to restore it to its original position. The practicability of the establishment of observatories on snow-clad mountains is therefore no longer to be questioned, and the multiplication of such institutions as that on Mont Blanc will no doubt contribute largely to our knowledge both in meteorology and astronomy.

It is characteristic of Dr. Janssen that he should take advantage of the opportunity of observing the aqueous bands in the solar spectrum. The air above him being very rare and also extremely dry, he found that when observing sunlight in its totality the bands at C and D were absolutely invisible, while the group at α was so pale that its presence could scarcely be determined. Dr. Janssen already regards it as certain that there is neither oxygen nor aqueous vapour in the solar envelopes, but the question is so important that too many observations cannot be made. To carry the observations a step further, it will be necessary, under analogous atmospheric conditions, to compare very carefully the centre of the sun's disc with the edge, to see if there is any augmentation of the α group as the limb is approached, this group being especially sensitive to variations in the amount of absorbing vapour.

EPHEMERIS FOR FAYE'S COMET.—The following ephemeris, for Berlin midnight, is given by F. Engström in *Astr. Nach.* No. 3313:—

	R. A. h. m. s.	Decl. ° ′
Oct. 17	21 11 9	−4 20·6
19	12 10	31·7
21	13 18	42·1
23	14 32	51·9
25	15 54	5 1·0
27	17 23	9·5
29	18 59	17·3
31	20 42	24·5
Nov. 2	22 32	31·0
4	24 28	36·7
6	26 30	41·6
8	28 38	45·8
10	30 52	49·3
12	33 13	52·2
14	21 35 39	−5 54·4

The calculated brightness is practically constant throughout the above period. Perihelion passage will not occur until March 19, 1896.

VISIBILITY OF THE DARK SIDE OF VENUS.—Various theories have been advanced at different times to account for the visibility of the hemisphere of Venus which is not illuminated by the sun, but there is no general agreement as to which is the most probable. Still another explanation is offered by M. Camille Flammarion, and it has the merit of being based on careful observations made at Juvisy during August and September of the present year (*Bull. Soc. Ast. de France*, October). The planet was frequently observed in full sunshine by M. Flammarion and his assistants, and the observations appear to put the matter in quite a new light. To these observers it has several times seemed that the interior of the crescent of Venus was darker than the sky, even on the day of inferior conjunction. That this appearance was not simply an effect of contrast produced by the luminous crescent is shown by the fact that no such darkening was apparent at the exterior edge of the crescent, and again by the visibility of the obscure hemisphere when the luminous part was artificially eclipsed. The colour of the unilluminated area was slightly violet in all the varied conditions of observation. M. Flammarion considers that the observations can be best accounted for by supposing that Venus is projected on a somewhat lighter background, such as might be furnished by the zodiacal light, or an extended solar atmosphere. The violet tint which was noted may have been due to the considerable refraction of the sun's rays by the atmosphere of the planet, the reddish tinge thus produced on the planet appearing purple when seen through our own blue sky.

In the same article, M. Flammarion gives some interesting facts relating to the history of the phenomenon, and some calculations which indicate that "earth-shine" is insufficient to account for it. Under the most favourable conditions, the terrestrial light received by Venus is 12,000 times feebler than that received by the moon, and 822 times less intense than the light we receive from the full moon.

THE MELBOURNE OBSERVATORY.—The twenty-ninth report of the Government Astronomer, Mr. R. L. J. Ellery, on the work of the Melbourne Observatory during the year ending at the beginning of last June, has just come to hand. Meridian observations, the daily photography of the sun, magnetic and meteorological observations, have been carried on as heretofore. The number of plates secured, in connection with the photographic chart and catalogue, up to June 1, was 1080. Preliminary measures have been made of 238 plates to obtain the positions where possible, of five stars on each plate, to be used for the determination of the constants of the plates. Mr. Ellery refers to the important change in time-reckoning made in February last by the introduction of zone or standard time in all the Australian colonies. By the zone system, Eastern Australian time, which covers Queensland, New South Wales, Victoria, and Tasmania, conforms to that of the 150th meridian; and this makes Melbourne exactly ten hours in advance of Greenwich time, instead of 9h. 30m. 54s., which is the true difference of longitude. The retirement of Mr. Ellery from his post as Government Astronomer has already been noted in these columns. Mr. Ellery has built up the Melbourne Observatory from its very small beginning in 1853 to its present recognised position among the national observatories of the world; and we are glad to see that the Government has appointed him a member of the Board of Visitors, so that he has not entirely severed his connection with the observatory. He has been succeeded in the directorship by the chief assistant, Mr. P. Baracchi, whose pendulum observations are well known to students of terrestrial physics.

A NEW OBSERVATORY.—The New York *Nation* notes a new departure at the University of Pennsylvania, by the addition of an astronomical observatory. The observatory has already been commenced, and, when completed, it is designed to furnish better facilities, not only for instruction, but for original research as well. The new edifice is two miles from the limits of Philadelphia, and about five miles from the university buildings. The instruments are an eighteen-inch equatorial, with spectroscope attachment, by Brashear, and a meridian circle and zenith telescope, each of four inches aperture, also by Brashear. The mountings are by Warner and Swasey. This institution will be known as the Flower Observatory, and its director is Prof. C. L. Doolittle, formerly of the Lehigh University.

THE INTERNATIONAL CONGRESS OF PHYSIOLOGISTS AT BERN.[1]

II.

THURSDAY morning, September 12.—Presidents: Profs. Dastre and Wedensky. Prof. Arloing (Lyons) gave the result of his researches on the persistence of electric irritability in the peripheral ends of divided nerves. The author found that the length of time for which electric irritability was retained varied with the species of animal, and also with the individual, and further that it was different both for different nerves and for the different kinds of fibres in compound nerves, such as the vagus. For spinal nerves the irritability lasted from four to five days in dogs, and from eight to ten days in horses. In one ass the author obtained cardiac inhibition with a rise of blood pressure, upon stimulating the peripheral end of the vagus fifty-seven days after section; this result he attributed to a tetanus of the myocardium.

Dr. Arthus (Paris) defended the view that the salts of calcium are necessary to the coagulation of the blood, against that of Alex. Schmidt, who does not believe their *rôle* to be an essential one. He further discussed the action of neutral solutions of the oxalates, fluorides, &c., in rendering the blood incoagulable. He disagreed with Schmidt, who holds that they act specifically, and maintained that their effect is due solely to the fact that they precipitate the calcium salts. Arthus repeated Schmidt's experiments, and was unable to confirm his results.

Prof. v. Kries (Freiburg) discussed the phenomena of colour vision in eyes adapted for darkness.

Prof. Gamgee (Lausanne) gave the result of his researches on the violet and ultra-violet spectrum of hæmoglobin and its derivatives. He exhibited photographs which showed the

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[1] Continued from p. 556.

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